A Naval Safety Center Publication

approach

SEPTEMBER 1974 THE NAVAL AVIATION SAFETY REVIEW

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Carrier Qualification and Refresher Landings

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Prospective CAG-7

CARRIER aviation's inbred and rigidly fostered obsession toward making every carrier landing an arrested landing, as opposed to a high ratio of touch-and-go landings, during qualification and refresher phases of training has, more than any other single factor, retarded individual expertise in the art of carrier recovery. The resultant waste of deck time, manpower, catapult and arresting gear material, life, money, aircraft, and lives over just the past decade is incalculable. The value to be derived from a series of four to six touch-and-go landings terminating in an arrestment as opposed to one, possibly two, arrestments presently attainable in a like time frame should have been recognized long ago with the inception of the angled deck. To state the heresy briefly:

The challenge to making a good carrier landing, of course, is nurtured through command attention, pride, and professionalism reviewed during every brief and pursued from pattern entry to touchdown. Although a safe arrestment is the ultimate objective, the arrestment, in itself, teaches the pilot nothing. Granted, in the case of initial qualification, there is a positive psychological factor involved in a pilot's first few arrestments. This factor, however, can be provided in a more objective fashion.

A pilot on his initial qualification/refresher passes learns relatively little because of his apprehensions and the uniqueness of the environment. He does not catch on right away that all of the techniques he acquired on the beach during extensive FMLP, with the exception of keeping the "ball" centered, have to be modified and even reversed coming aboard the carrier; there is no ground effect requiring him to ease gun and drop nose to stay on glide slope in close. In fact, the opposite is true. When established on carrier glide slope, we all learned very quickly that a little power and attitude are required to compensate for the burble. Also, that seat-of-the-pants perspective of the overfamiliar FMLP landing site and its surrounding terrain is negated by the size, elevation, and composition of the flight deck in relation to the broad ocean expanse. FMLPs provide the pilot with hardly any impression as to the degree of difficulty in maintaining

lineup on the carrier.

As qualification/refresher periods are presently conducted, the pilot, after one or two touch-and-go landings, is barely beginning to recognize and respond to the parameters just mentioned when he is required to make his first arrestment. Once aboard and confronted with deck and catapult procedures, he is forced to immediately divorce from his mind what little he assimilated during his initial one or two approaches concerning conditions around the ship and what effect they have on his approach technique. Once airborne again and in control of the aircraft, all his effort is directed toward attaining a proper interval. Suddenly, he is at the 180 and turning final. At no time in the entire interval since he commenced his initial approach has the pilot had even a moment to reflect on glide slope phenomenon he encountered during his initial approaches. And so it goes for the next 2 or 3 days until the qualifier/refresher has accumulated either the four or 10 arrestments required to qualify/refresh.

On the other hand, if the introductory approaches consisted of four to six touch-and-go landings, the pilot's learning curve would vector upward on about the third approach and continue uninterrupted for the remaining two or three passes and an arrestment. On each successive pass, the pilot will have gained a broader perspective of the many factors involved and will have begun to develop his scan and coordination accordingly. More importantly, a nominal time will have elapsed between exposures to the varying phenomena in the groove which provide the pilot with the education he came to get.

A trap and a debrief followed by another series of touch-and-go landings, culminating in two or three arrestments in the case of initial qualification, would produce a far superior carrier qualified/refreshed pilot than is now the case. In most instances, the two periods (one, in the case of refreshers) required to accomplish the above will have been short in duration; that is to say, not so fatiguing on anyone involved as to preclude night qualifications/refresher the first night at sea. This is particularly pertinent to current Mediterranean operations wherein our CVA/CVW teams feel pressured to take advantage of that first night at sea.

In addition to providing better qualified pilots, acceptance and refinement of this concept would allow the type commanders more latitude in deploying their limited and tired carrier assets during the carriers' short CONUS turnarounds. Ultimately, when we have washed away the immature attitude that the only worthwhile carrier qualification/refresher landing is one that culminates in an arrestment, more important factors (such as sustained, air wing, shore-based, carrier landing proficiency; improved deck time utilization and efficiency; and more effective utilization of carrier manpower and material assets) will be attainable. For example, a GCA approach, touch-and-go, and bingo profile could, on a scheduled basis, become the routine climax to every shore-based Fleet sortie when a carrier deck is available offshore. Even the instructor pilots in the training command could stay proficient in the Gulf while introducing their students to the full spectrum of carrier recovery procedures, i.e., GCA penetration and approach, touch-and-go into bolter pattern, bingo profile. Consequently and logically, the training command carrier could become the training center for CCA and, possibly, AI controllers.

With the retirement of our ESSEX/ROOSEVELT class carriers, a deck *anchored* into the wind could quite feasibly be made available on each coast, justified not only for refresher landings by all types of CVA/CVS/CV/Sea Control aircraft, but for every other phase of shipboard training and RDT&E, i.e., LSO and CCA training, firefighting, damage control, aircraft handling, etc. In fact, training possibilities and applications would be unlimited and at relatively little overhead, compared to maintaining the respective shore-based facilities required to accomplish the same tasks.

Adopting this touch-and-go philosophy after its 28-day transit to WestPac, SARATOGA and CVW-3 accomplished over 700 landings in just three spaced launch and recovery evolutions during the first of 4 days allotted for refresher operations (see sample Air Plan). Every pilot in the air wing got at least one-half hour of mission training in addition to four graded touch-and-go's and a trap. The success of this evolution allowed the wing to devote the remaining 3 days to intensive combat preparation and effectively suppressed the level of recovery apprehension normally permeating Primary and Air Ops.

With regard to night proficiency, it might be of interest to all in the Atlantic and Mediterranean communities that no matter what the level of urgency of combat necessity in the Gulf of Tonkin during the heated months of April through December 1972, not a single aircraft on any carrier was launched on a mission necessitating a night recovery until the third day of operations following each inport period. This included inport periods of only 4 or 5 days duration following line periods as long as 40 days.

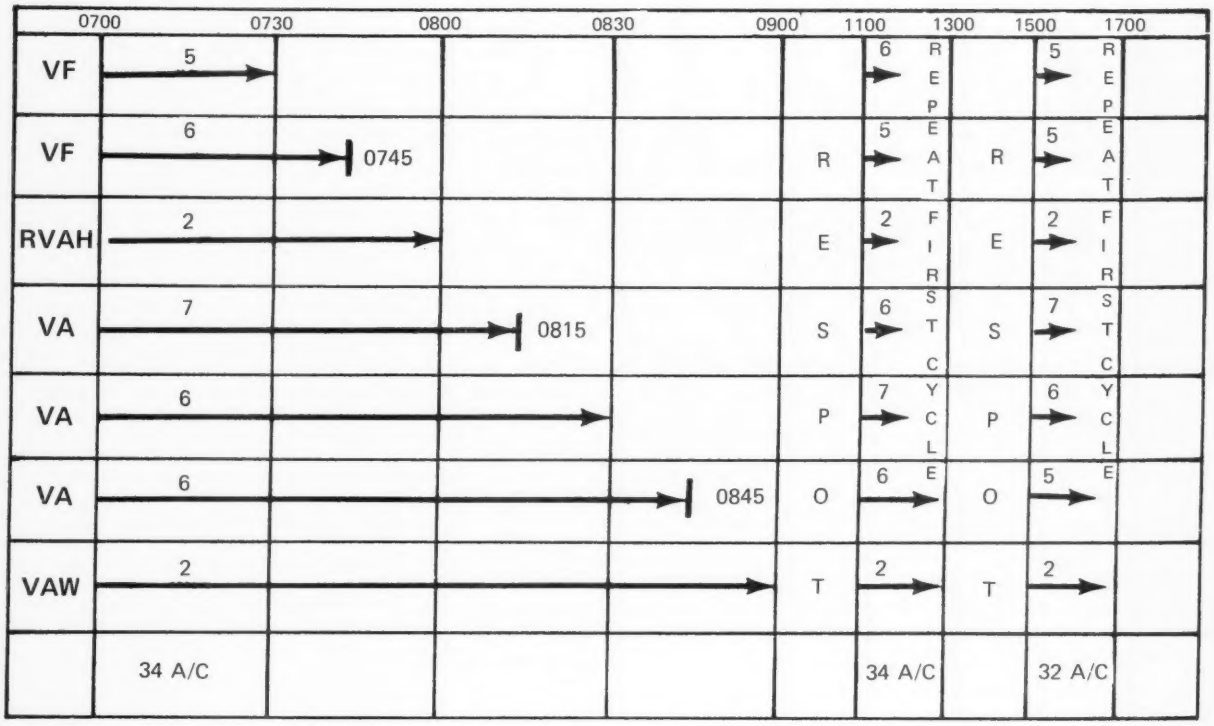
This prudent philosophy was only adopted after 5 years of costly experience in what has to be considered the most proficient carrier landing environment in carrier aviation history. This certainly constitutes food for thought in our far less proficient Atlantic and Mediterranean operating environments.

USS INFREQUENTLY AT SEA

AIR PLAN

SAMPLE REFRESHER SCHEDULE
(4 - 6 Touch-and-Go's)

FIRST DAY AT SEA



Totals:
100 Sorties
100 Pilots refreshed
400-600 Touch-and-Go's
100 Arrestments

Above tempo of operations would prudently permit one night cycle composed of mostly experienced aircrews.

TRY IT, YOU MIGHT LIKE IT!

Success depends upon the following factors:

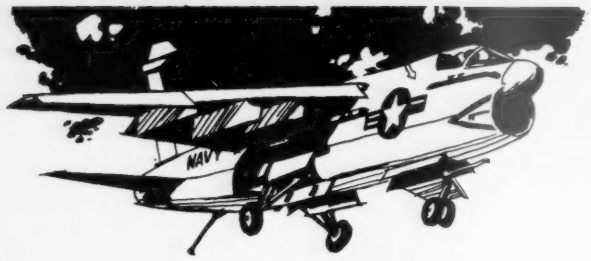
1. A basic understanding by all aircrews, the air boss, and the Captain of the rationale behind such an evolution – aircrews must fully appreciate the advantage of a series of touch-and-go's over a lesser number of traps. Naval aviation is far too sophisticated for us to still be contemplating our logbook entries.

2. Flight element timeliness and pattern discipline with regard to this type of Air Plan. Touch-and-go interval can be reduced to 15 seconds. The above Air Plan is quite flexible, but it does reflect a hard to accept departure from cyclic operations.

3. A respected LSO team – forceful in controlling the pattern, constructive in commentary, and enjoying the full confidence of CAG, the air boss, the Captain, and most importantly, all aircrews.

4. An intense and universal intra-air wing competition in squadron professionalism around the boat.

AIR BREAKS



Decisions. A brand new plane commander took off from Homeplate in a multiengine bird with a complete crew and two passengers aboard – an O-6 and an O-5. The latter was the squadron Ops officer. Their flight plan was filed to Destination with a passenger stop at Halfway to drop off the scrambled eggs.

Less than an hour out of Halfway, a speed sensitive control failed on one of the port engines. The plane commander held a conference in the cockpit with his copilot and flight engineer and consulted his passengers. He then announced his decision to overfly the passenger stop and continue to Destination. There was no maintenance support at Halfway, but there was full support at Destination where he could have the malfunction corrected. (It was a downing gripe.)

Much discussion ensued, and ultimately, the plane commander, against his better judgment, acceded to pressure from the Ops boss and landed at Halfway. His passengers were dropped off with engines turning, and they proceeded uneventfully to Destination. The gripe was fixed.

Some of the errors in judgment were:

- The plane commander let himself be talked into landing at Halfway by the Ops officer.
- Landing with a known downing discrepancy at a base lacking support.
- Disembarking passengers with engines running.
- Making a takeoff with a known downing discrepancy.

The young plane commander initially made the proper decision to overfly Halfway. The Ops officer, with many years of experience, talked him into doing something unsound and UNSAFE. The plane commander knew what his responsibility for the aircraft, crew, and passengers was. His designation so states. Let's not be talked into a course of action known to be unwise.

Control FOD. During an instrument hop in a TA-4F, the pilot in the rear seat was given control of the aircraft, but he had no lateral movement of the stick. Command was returned to the pilot in the front seat who made a normal landing.

Upon troubleshooting the system, it was discovered that a previous pilot had dropped an ink pen in the cockpit. The pen was found lodged in the controls.

An accident could have resulted because the pilot who dropped the pen didn't report it to the plane captain or maintenance control. It should also have been put on the yellow sheet.

Overlapping. While shooting practice GCAs at NAS Island, a pilot encountered USS BOAT conducting night carrier qualifications inside the airport traffic area of NAS Island. The pilot passed directly over USS BOAT, 3 miles on extended centerline of the duty runway, at 1200 feet.

USS BOAT had not informed NAS Island of her presence or operations, a fact which could have been disastrous.

A New Hand. "Bartender, draw two, please." Happy hour was officially open. The ASO turned to his buddy and said, "Now I'll tell you what happened to Charley."

"On his last cruise, you'll remember, he had a detachment on

APPROACH is a monthly publication published by Commander, Naval Safety Center, Norfolk, VA 23511. Subscription price: $11.70 per year; $2.95 additional for foreign mailing. Subscription requests should be directed to: Division of Public Documents, Government Printing Office, Washington, DC 20402. Controlled circulation postage paid at Norfolk, VA.

The gyrations of the DE stretched the cable to the breaking point, and one end whipped back . . .

an AFS. He and the others were getting plenty of work and lots of flight time. Their CH-46D was seldom down. Oh, they had their share of little gripes, but nothing serious. Matter of fact, they didn't abort a mission for weeks.

"Charley had complimented the personnel of his det a couple of times on their good work. They took pride in their work and were glad to hear the boss say so.

"Well, Charley himself was flying one day – right in the middle of the action. They had a typical mickey-mouse flight, the kind where even the birds were staying on deck. They were in a hover for about 25 minutes over the 0-1 level of a DE transferring all kinds of good things like mail, baggage, and passengers.

"Winds were 330 degrees relative at 22 knots. Swells were running 8 to 10 feet with a 2- or 3-foot chop. The DE was rolling 15 degrees either side and pitching heavily. The sky was overcast with fast moving scud just above the helicopter. Visibility was one-half to one mile in drizzle. Generally, conditions were *yech.*

"During the time Charley was hovering the helo, his crewmen were busy. They transferred seven loads of mail, one load of baggage, and had just lowered a bag of cranial helmets and lifejackets before hoisting three passengers.

"The DE deck crew took the bag of helmets off the hook and left the hoist cable tended by a new hand. He was going to put the bag back on the hook as soon as it was emptied before any of the passengers were hoisted. The DE, during a combination pitch and roll, threw the deck crewman off balance, and the helo cable swung free – momentarily. Quickly, it swung aft and attached itself to a stanchion. Charley didn't know the cable was fouled, and his crewman didn't have the chance to tell him.

"The gyrations of the DE stretched the cable to the breaking point, and one end whipped back up and zapped the rescue boom, a pallet, and the cabin roller assembly. Fortunately, the other end fell to the DE deck and didn't hurt anyone.

"Charley felt the tension release just before he heard the cable ricocheting around, making all kinds of strange noises. When advised of the incident and assured no one was injured, Charley returned to his ship. After shutting down, he looked sorrowfully at the damaged helicopter. Their bird was down for quite a while."

Cable control by deck crewmen is absolutely necessary for safe hoist operations. It's a must, especially during heavy weather, that only experienced grounding attendants handle the cable.

"Bartender . . . "

Rig It Right. A squadron received an SH-3G from a NARF after the aircraft had received major repair. It had been involved in an accident. After an acceptance check, the bird became operational again.

During a period of about 90 days, it was downed twice for rigging discrepancies. Each time, however, it was signed off with "pulled quick rigs, checks 4.0 on deck."

After a local training flight one day, the pilot downed the helicopter with the following writeup: "Cyclic position, ASE off, is slightly left and forward or neutral on the copilot's side. Aircraft had full control authority."

This time, the main rotor head rigging was checked and found to be considerably out of limits. This necessitated adjustment of nearly all the pushrods. The aircraft was test hopped and on return was written up for strong rudder pedal kickbacks above 120 KIAS. Maintenance personnel discovered the tail rotor rigging was out by 2 degrees. It was corrected.

The aircraft had flown 135 hours out of rig! ◄

ACM

A NAVY fighter lost in a training accident is just as lost as if it had fallen to MIG cannons. What makes that loss even worse is that we're at fault.

Without proper crew training, the man/machine combination is of no value. To maintain fighting potential, we must keep our crews trained in the area of ACM. ACM verges on a form of art. The fighter crew and its aircraft must fuse, but ACM cannot be defined or controlled by gouges and checklists. Some general considerations in the conduct of ACM training follow.

Most fighter crews have an ego problem. To fly a U.S. Navy fighter is to be among the very best, and we know it. Unfortunately, we often turn this feeling of being the best onto one another. This can be disastrous from both safety and training aspects. ACM training must not

SAFETY PHILOSOPHY

Submitted by VF-101 Detachment Key West

degenerate into ego building sessions. The way to avoid this is to carefully control the planning and execution of such training.

ACM training missions must be approached as learning sessions. The objectives of the mission and the setups to be executed must be meticulously planned. A learning atmosphere must be provided in which aircrews are willing to risk losing in order to learn. This takes intensive briefs and air discipline of the highest order.

When the flight is over, the learning session has only just begun. The mission must be reconstructed to analyze good moves, errors, and other possible tactics. An engagement is a series of moves and countermoves, each of which must be reconstructed and analyzed in the debrief. The professionally executed ACM mission will be safe and will perfect the talents of all involved.

To complete any mission safely in a high performance aircraft, the crew must be in proper physical and mental condition. The ACM training mission demands perfectly functioning crews. They will often face a dynamic three-dimensional situation with high closure rates in which the slightest miscalculation or incorrect perception can lead to an unsafe situation.

Additionally, the crew must have recent time in the aircraft so that the man-machine combination can function with precision – without hesitation. COMFITWING ONE and COMNAVAIRLANT instructions require at least one mission in the past 6 days and at least 10 hours in type during the past 30 days as minimum recent experience in type to conduct ACM training. With proper physical and mental conditioning and recent experience in type aircraft, the aircrew is ready to conduct intensive ACM training . . . safely.

The airplane must be as carefully prepared for the ACM mission as the pilot. Special care must be taken to ensure the aircraft, especially in cockpit areas, is FOD free. FOD could become missile hazards under the forces imposed by ACM.

Aircraft limits must be understood and observed. The

VF-101 detachment training limit is 6.5G, but in a heavy aircraft, being fast and/or asymmetrical, even this could impose damaging overstress. Experience has shown that an overstress in excess of 7.5G often results in aircraft damage. The mission should be terminated if an overstress of this magnitude occurs. After any overstress, the aircraft must be carefully inspected. This may seem a thankless job to the maintenance crew, but their care has frequently paid off.

Inflight fuel-fed fires are a potential problem. Recent awareness of the problem and increased maintenance attention to the fuel system has reduced the hazard, but one must still act immediately if streaming fuel is noted. Other than a few seconds of trailing vapor from the vent mast as an aircraft goes to zero or negative G, any fuel streaming is unacceptable. The aircraft should resume level flight, terminate afterburner, and stop fuel transfer. The fact that the streaming stops doesn't mean it has fixed itself. The flight should be terminated, and the aircraft inspected. The vent system may have failed, or worse yet, a fuel cell may have ruptured.

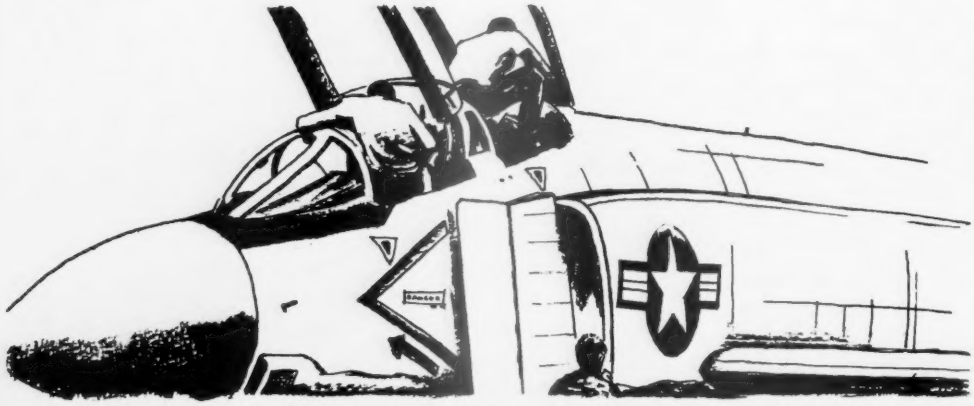
Loss of control historically is a big cause of ACM training accidents. This type accident has recently declined. The handling qualities of the *Phantom* are more generally understood, and an expanded ACM training program has let the fighter crews stay at a higher level of proficiency. But we must continue to bear down on this potential hazard. COMNAVAIRLANT and COMFITWING ONE both require loss of control/spin recovery briefs prior to each ACM training mission. These briefs should be done with care and in detail for each type aircraft regardless of the experience level of the crews involved. An out of control situation is confusing, and a freshly drilled mind is an outstanding recovery aid.

Altitude margins for recovery are important and are spelled out in detail by pertinent directives. No engagement should continue if it has gotten to low airspeed and high angles-of-attack below 12,000 feet. If you find yourself there in the *Phantom*, the odds are things haven't been going too well anyway, so go ahead and knock off the engagement.

Fuel starvation always lurks as the unhappy ending of an ACM training mission. This is especially critical when working long distances from Homeplate or a suitable divert field. Each member of the flight should be aware of the fuel states of all aircraft. If controllers are working the fighters, they should understand how to monitor fuel and have a feel for engaged fuel consumption. RIOs should really work to watch that fuel gage. Ensure the transfer system is properly configured and functioning prior to an engagement. *Always treat a low level light as an actual indication, no matter what the fuel gage says.* Your transfer system may be malfunctioning. Careful attention and knowledge of the fuel system will prevent your logging any F-4 glider time.

Weather considerations are spelled out by COMNAVAIRLANT and COMFITWING ONE. These restrictions basically ensure that at all points in the arena of an ACM training engagement, sufficient visibility exists for all aircraft to maintain visual contact. A clear horizon is important, especially over water. Spatial disorientation crops up suddenly and dramatically during ACM training. Ensuring a proper visual reference is the most positive way to prevent it.

The points covered in this brief ACM philosophy are not new or startling. They are, rather, detail points of which there are countless others. The ACM safety philosophy can be summarized as careful, professional attention to detail before, during, and after the mission. This care and attention on every training mission will keep our fighters where they belong – in the air, at someone else's "six." ◄



Ground unControlled Approach

By CAPT G. L. Galiger
VMA-214

DON'T allow yourself to enter a situation that someone may be sorry for. A few weeks ago, a GCA final controller and a Marine pilot came close to being *real* sorry.

A flight of two Marine *Skyhawks*, returning to MCAS Homeplate from a local training mission, elected to make separate PAR approaches to full stop landings. Enroute descent and approach handling for both aircraft were uneventful until the second aircraft (23) was handed over to his final controller. It was nearing sunset, and the weather was reported as partial obscuration, 700 scattered, 1500 broken, 5 miles in fog and haze. The lead aircraft (01) was already 4 miles ahead of his wingman.

Marine 23 was instructed by Approach to descend to 2000 feet, turn left to 350, and contact the final controller. Marine 23 attempted to establish radio communication with Final, but was unable. He rechecked his assigned frequency and paused to give sufficient time for the controller to come up on assigned frequency.

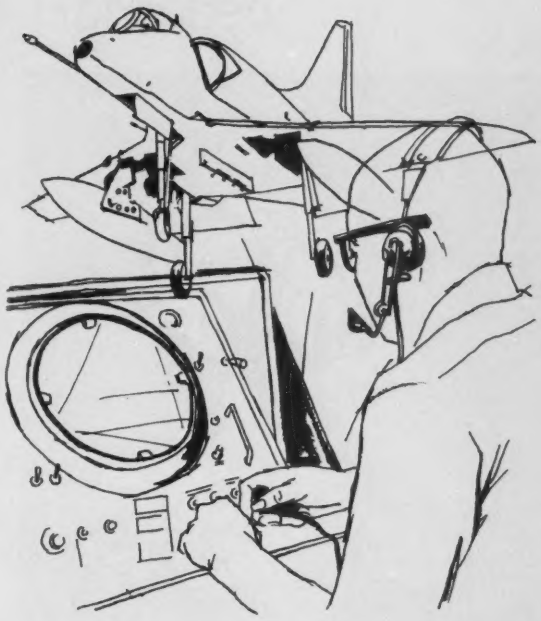
After about 30 seconds, the final controller came up and a normal check-in followed, except that Marine 23 did not receive a radar contact report or lost comm procedures.

Marine 23 was at 8 DME from Homeplate TACAN and level at 2000 MSL with three down and locked. Final rogered Marine 23's transmission, paused about 10 seconds, then informed the pilot that he was slightly *above* glidepath and on course. Marine 23 thought that was unusual, as one is always *below* the glidepath until he intercepts it.

The pilot rechecked his altimeter, which indicated 2100 feet MSL, and assumed that he was above glidepath because he was 100 feet high. The final controller informed 23 that he was still slightly above glidepath, on course, on final, and not to acknowledge any further transmissions.

Marine 23 remained steady on a 350-degree heading and commenced a rate of descent of about 700 fpm. The final controller once again informed him that he was above glidepath, so he increased his rate of descent to 1000 fpm.

Final repeated again that 23 was slightly above glidepath and cleared to land on 34R. Marine 23 at that time was passing through 1600 feet MSL with poor forward visibility when he noticed ground references.



The controller stated that Marine 23 was slightly below glidepath now, on course, and transmission break. Marine 23 observed that the ground was not 1000 feet away, but about 300 feet below as he passed over a hill. He stopped his descent, leveled at 1200 feet MSL, checked his DME at 5 miles, and determined from ground references that he was left of the desired ground track.

The final controller transmitted that Marine 23 was still slightly below glidepath, at decision height, then over the landing threshold. Upon receiving this transmission, the pilot informed Final that he was at 4 miles and level at 1000 feet MSL.

A short pause was followed by instructions to come right to 010. Marine 23 complied and acquired the field at 1½ miles. The pilot took over visually and made an uneventful landing.

Upon his return to the squadron area, Marine 23 immediately phoned the GCA supervisor to find out what the problem was. He was somewhat amazed to discover that his final controller had been tracking Marine 01.

(Both controllers and pilots are human and do err. Teamwork is the key. Crosschecking each other's actions must be a way of life if occasional close calls [or worse] are to be avoided. – Ed.)

Put 'em in the Hangar

AT 0945, the SDO received a call from Meteorology advising that Thunderstorm Condition I was in effect. He passed the word within the squadron and initiated action in compliance with the squadron's destructive weather plan, which included hangaring all aircraft.

It became immediately apparent that the job wasn't going to be easy. Getting 21 CH-53 aircraft into only 15 spaces was similar to the old saw of trying to put "10 pounds in a 5-pound bag." Furthermore, there was only one operable tow tractor to do the job.

First things first. While the tow tractor was busy respotting aircraft inside the hangar for max storage, an additional three spaces were obtained in a nearby hangar. Winds were gusting to 45 knots at the tower, but those who were muscling the big birds swore the wind between the hangars was much higher.

Eventually, only three aircraft remained outside. One was folded – two were spread. Then complications arose with the folded bird. Line personnel installed the blade and pylon support struts, but were unable to secure the fittings at two blade and fuselage attaching points. The NORCO fitting on the No. 1 blade would engage, but wouldn't hold. The fitting at the fuselage end of the pylon support strut assembly would engage, but not lock. This allowed the folded tail pylon to contact the upper HF antenna strut, puncturing a hole in the pylon and breaking the strut.

Approximately 10 men were used to hold the blade and pylon to prevent further damage until enough space was found to tow it into a hangar. (Two spread aircraft were repositioned in the lee of a hangar and moved whenever necessary to remain in the lee side as the winds shifted.)

Winds were officially reported at 25 knots with gusts to 45, although at another location of the airport, wind gusts were recorded between 55 and 60 knots.

Several unusual circumstances warrant further comment:

- The squadron allowance called for four tow tractors, but usually, only two were assigned. A shortage existed at the air station, and the host was unable to provide any tenant activity with their full allowance.
- The air station was located in a severe weather warning area which stretched about 400 miles north/south and about 100 miles east/west. The warning had been given about 1½ hours before the onset of damaging winds, but with insufficient time to accomplish all the moves.
- The H-53 was damaged because of a design deficiency – the strut locking system – which has existed since acceptance and has been reported many times. A redesign has been requested to provide for adequate security of aircraft components in wind/sea conditions likely to be encountered in the operational environment.
- When high winds are forecast, the aircraft must be hangared, flown away, or main rotor blades removed. Time precluded all but securing them in available hangar space. The shortage of tow tractors compounded the problem, but the quick reaction by squadron personnel prevented more extensive damage.

"Task loading of crews in complex modern aircraft under positive control in our crowded skies is becoming alarmingly high. We need to help these people rather than berate them in an effort to make them infallible."

Help for the Harassed

THIS is the main theme of a recent paper authored by CDR R. A. Massey, Commander, Attack Carrier Air Wing TWO, on the subject of ideas for aviation safety. He says:

"We can influence events by changing people or by changing things. All too often, we try to change people because that appears to be the easiest way. Story has it that when Dr. Eisenhower assumed the presidency of Columbia University, he was presented with the seemingly insoluble problem of keeping students off the grass. The university authorities had tried everything they could think of, from 'keep off the grass' signs to heavy fines, but the grounds were still crisscrossed with well-worn paths. Dr. Eisenhower's recommendation was to 'put the sidewalks where the people want to walk.' "

CDR Massey suggests that to some extent we are like the university authorities putting up "keep off the grass" signs when we react to an unintentional wheels-up landing by exhorting pilots to "use the checklist." "Certainly, this works most of the time, but it is predictable that unintentional wheels-up landings will continue no matter what anyone says. Infallibility is not man's long suit."

Clearly, the time has come to provide more help for the harassed. CDR Massey offers examples of aircraft which have poorly located warning lights which, in some cases, are not visible to the second crewman. He suggests improved locations of warning lights and proposes that they be supplemented by aural warning tones. He also proposes installation of a "minute-minder" timing device which would serve to provide a reminder at appropriate times for performing certain functions, e.g., secure fuel dump, report reaching an altitude, put the wheels down, etc.

The Air Wing Commander's point is that much can and should be done to assist aircrews in correctly performing their numerous complex tasks. COMNAVSAFECEN heartily concurs. It is a goal which should be kept in mind by all concerned, from aircraft designer to squadron line managers.

CDR Massey concluded his paper by noting that people can be favorably influenced by promoting professionalism and by motivating them to think in terms of safety. He notes that there is much recognition given for operational accomplishments, but very little individual recognition for safety accomplishments. He suggests:

1. An individual operational safety ribbon for 500 hours accident-free flying.
2. An individual operational safety medal for 2000 hours accident-free flying.
3. A service record entry for (1) or (2).
4. "Greenie" board for weekly NATOPS exam results.

(AIMIS [advanced integrated modular instrument system], now under development by NAVAIRSYSCOM, offers a real quantum breakthrough in man/machine interface. Look for the article on this subject that appeared in the August APPROACH. – Ed.)

12

NONAVIATION SHIP FLIGHT OPERATIONS

HELICOPTER pilots have been operating off nonaviation ships for about a quarter of a century. During this period, much knowledge has been gained, techniques have been refined, and SOP has been established. Nevertheless, too many incidents and accidents continue to occur.

Generally, one can say that most mishaps in the past few years have been caused by inept pilot performance. This condemnation can be mitigated by weather, seas, or marginal facilities, but it is still the pilot who decides whether to continue an approach to a landing or wave off.

Let's review the bidding and compare what's what between today and yesterday.

	Today	Yesterday
Engine reliability	Excellent	Satisfactory
Engine power	Lots	Marginal
Emergency throttle	Yes	No
Aircraft size	Big	Small
Aircraft systems	Automatic	Manual
Instrumentation	Full Bag	Needle, ball, airspeed
Communications	Unlimited	4-channel
Deck certification	Manuals	Eyeball
Weather	All	Day VFR
Helos for training	Limited	Plenty
Training syllabi	Thorough	Thorough

If pilots today are at a disadvantage compared to pilots of the fifties, it is only in two areas. They have to operate bigger birds out of the same small deck areas, and there are fewer birds available for training flights at Homeplate. All else is stacked in favor of today's pilots.

Some time ago, an incident occurred which highlights a typical nonaviation ship mishap. Here it is in detail with errors in technique/judgment numbered.

The crew of an SH-2D, operating from a DE, was assigned a mission to drop off two passengers on a DLG. Neither *SPLASH* nor the *Non-Aviation Ships Helicopter Facility Resume* were consulted (No. 1). On the approach to the DLG, both pilots noted the deck was devoid of markings – any markings.

The HAC decided to continue his approach for landing (No. 2). He received a green deck with winds 35 degrees port at 19 knots. Later, it was determined that sea state was four and deck pitch was about 5 feet with 10-15 degrees roll. His position on final was 25 degrees out of the relative wind, and holding a stable hover was extremely difficult. One observer remarked that the pilot appeared to be overcontrolling and that the helo was unsteady (No. 3).

Nevertheless, the HAC continued to fight it (No. 4). He was concerned about a capstan to his right, a missile launcher in front, and the location of the deck edge aft. The pilot was receiving signals from the LSE (nonstandard, but understood) and information over the ICS from his crewman. He admitted he was more concerned with his crewman's directions than with the LSE's signals (No. 5).

(Note: The most important item is alignment, the next is obstruction clearance, followed by speed control, and the very last, tailwheel position. The only good anyone in the helo can do is to spot the latter. *Watch that LSE!)*

The LSE commented, "Once over the flight deck, his tailwheel moved right over the bits. I gave him a hold and tried to reposition him. I started to land him when he moved his tail to the right, backed up, and came down over the nets."

The HAC saw the signal to land, *assumed his tailwheel was over the deck* (No. 6), and eased it down. The ship rolled as the helo touched down, and the tailwheel hit the outside lip of the coaming just before the main gear touched down. As the pilot began reducing collective, the LSE signalled waveoff, and his crewman hollered the same. He went, but not in time to keep the tailwheel from rolling off the deck edge.

The HAC made one pass around, entered a hover, and lowered his passengers by hoist.

Ship's company had resurfaced the helo deck about 2 days prior to the incident and had not restored any deck markings. Further, no information had been passed by the ship to the helo concerning sea state, deck pitch and roll, or condition of the deck surface. Finally, ECP 331 (repositioning the tailwheel 6 feet forward) had not been incorporated on the helicopter.

Safe operations to and from nonaviation ships require that helicopter pilots draw heavily on their training and experience. It requires good communications between ship and helo. It requires good coordination among pilots and crewmen. Last, but not least, it requires full attention, concentration, and the finest sense of touch on the controls by the pilot. ◄

The article "What a Drag" in the FEB '74 APPROACH resulted in two lengthy letters which discuss prevention of such accidents in the future. Although the letters presented here do not necessarily reflect the position of the Naval Safety Center, they are presented in full to stimulate thought and discussion.

FORUM

Norfolk, VA – Your FEB '74 issue featured an investigation of a recent crash of an F-4J during an unintentional, no-flap takeoff attempt. The point was well made that there is no substitute for proper procedures, including strict and religious adherence to *every* item on the appropriate checklist. I couldn't agree more. I contend, however, that there is not an aviator flying who, at one time or another, has not overlooked or omitted an item on a checklist. Most of us were fortunate in that no mishap resulted therefrom. Thus, it is likely that there will be other accidents because of unintentional, no-flap takeoffs in the F-4, just as there have been in the past.

The pride of fighter pilots is legendary – and rightfully so. It was the source of a great deal of friendly rivalry when I flew A-4s. It is instilled at every level of training in every Fleet squadron. Most important, it is a catalyst to the rapport of man and machine essential to becoming combat effective in a fighter role. I believe that the following proposal will be greeted with resistance by some pilots of the fighter community, because of the very pride which is rightfully theirs, in that it would provide a "crutch" and thus make the airplane a little easier to fly.

The C-131F, which I have flown extensively in recent years, has a simple, no-flap takeoff warning system consisting of a circuit through the touchdown relay and a microswitch in the flap structure and in the throttle quadrant. This circuit actuates the landing gear warning horn when 1) the aircraft weight is on the landing gear, 2) the flaps are fully retracted, and 3) the throttles are advanced to takeoff power.

NATC Patuxent River, MD – Your article recalls experiences I have had with earlier models of aircraft regarding takeoff technique. When I was learning to fly, in F6F-5s, I watched many student pilots try to "horse" that *Hellcat* into the air. It didn't take much analysis to figure out that a good landing attitude was also a good takeoff attitude (given the ample length runways that our government has built for us). That tip worked for me thereafter in F8F-1, AU-1, F9F-5, AD-4, and other early types that I was lucky enough to get time in.

Then came real help in the form of the F9F-8 and *angle-of-attack*. I had an instrument there that would precisely indicate my takeoff attitude. Now, I could let the airplane roll down the runway, ease the nose up until AOA was on the approach reading (at 3 o'clock on the dial face), and wait for the airplane to fly itself off with no more pulling by me.

I used this procedure a lot in F-8 flying, and to a lesser extent in the F-4. There was a problem with the latter, however, in that the F-4 comes "unstuck" somewhat after flying speed has been achieved, so you couldn't really *hold* a takeoff attitude. But even here, AOA helped because when this airplane rotated, I made sure it didn't rotate past the landing AOA, say, like 18 units. Know your airplane, however, because some of them cut off the AOA with weight on the landing gear (A-4M, for instance), so this technique is not available.

A question then: Why is AOA cut off on landing in some airplanes, but not in others? With the indexer dimmer control, it can't be because the light is too bright. How many pilots use the AOA "turn-on" as a gear up signal? Bad practice.

I confess that I have made some inadvertent flaps-up takeoffs in my time; would you believe two in the

I submit that a similar warning could easily be designed, employing an intermittent or steady aural tone and/or warning light, for application on all present and future generation aircraft in which no-flap takeoffs are critical. Certainly, the cost of retrofitting such a system to all F-4 aircraft would be more than justified if it would prevent the loss of only one F-4 and crew.

Finally, on the subject of checklists, I would like to pass on my personal, last-minute check developed while flying KC-130s in Vietnam, where the tempo of operations was often strenuous and my copilot and flight engineer were seldom the same as on the previous flight. It was accomplished after the takeoff checklist was completed, usually between takeoff clearance and brake release. Taking less than 5 seconds, it consisted of:

Flaps (to be sure of the setting).

Trim (to detect possible runaway).

Gyro (attitude gyro to detect obvious malfunction).

Compass (RMI to check for runway heading).

Thus, I was assured that I could safely transition to airborne flight, regardless of weather or other conditions. I feel that the check is applicable to other types of aircraft and that, other than engine output which is monitored during the takeoff roll, these four items are of utmost necessity, particularly during IFR weather.

MAJ W. A. Stickney, USMC
Commanding Officer
Headquarters Squadron
Fleet Marine Force, Atlantic

(Because of six overrotation mishaps which have been attributed to inadvertent no-flap takeoffs in the F-4, NAVSAFECEN is evaluating the feasibility of a "flaps" light on the telelight panel which will also illuminate the master caution light whenever the weight is on the landing gear, the throttles are advanced past 80 percent RPM, and with half-flaps not selected. – Ed.)

F9F-8? But I held my AOA where it belonged, and the end result was a little faster airspeed and a little longer to get airborne. There was no panic pull on the stick from watching a higher airspeed, and the end of the runway was still a good safe distance away.

Checking the F-4J NATOPS Manual on page 3-21, reference is made to AOA in the takeoff, but only "... do not exceed 22 units." I think it should say something like: "... and as the aircraft starts to rotate, the stick should be adjusted forward to maintain approximately 18 units angle-of-attack (the pointer at the 3 o'clock position on the dial face). Concentrate on a smooth rotation and don't allow the angle-of-attack to overshoot significantly (in any case, do not exceed 22 units as a maximum)."

In the case of the F-4J, this technique seems to be consistent with the procedure already recommended, based on pitch attitudes of 10-12 degrees noseup. The chart on pg. 1-31 of the F-4J NATOPS Manual for half-flaps, gear down, 36,000 pounds gross weight (which I concede is not a representative T.O. weight), shows that at 12-degrees fuselage angle-of-attack, the indicated angle-of-attack would be about 18.3 units. At greater weights, this relationship remains the same, but the airspeed increases. This "one" AOA takeoff technique is valid for any weight aircraft, just as one AOA is valid for landing at all gross weights.

Summing up, if the pilot watches AOA during field takeoff, in addition to the airspeed and/or attitude indicator, maybe we can prevent the next tail drag in the F-4 ... the F-14 ... the F-20 ... or whatever.

COL R. W. Peard, USMC
Naval Air Test Center

These photographs of escape and rescue hatches used in H-2s, H-3s, and H-46s vividly demonstrate the many different kinds in use. Future helicopter design specifications should be more definitive to effect a much greater degree of standardization.

HELICOPTER ESCAPE

By LCDR Brian H. Shoemaker, USN

AFTER several unfortunate accidents that claimed the lives of a number of helicopter passengers in 1972, the Navy has taken action aimed at improving passenger safety. Helicopter indoctrination schools have been set up, passenger briefings have been standardized, and flight and survival equipment for passengers has been made mandatory. Everything is aimed at minimizing the chances of injury and enhancing survival during a crash.

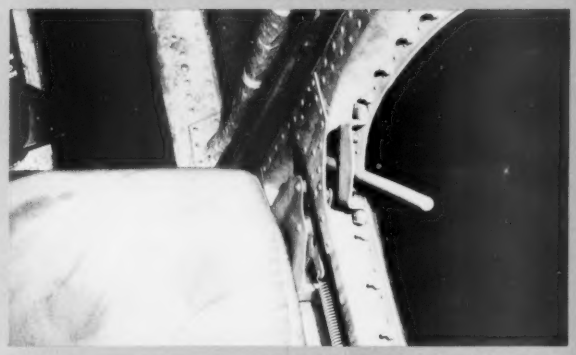
But, what happens to a healthy or perhaps injured passenger after the aircraft goes into the water or hits the ground? He is supposed to escape or be rescued from one of the escape hatches in the aircraft. Stated and dismissed! As the passenger is seated, he is briefed to get out via the hatch nearest him. Perhaps he is shown how it works by a conscientious crewman – a fact which may go right over his head as he is looking for the other end of his seatbelt. Here is the crux of the problem: an inspection of helicopters based at NAS Imperial Beach revealed no less than 15 types of escape latch mechanisms in three models of aircraft (H-2, H-3, and H-46). There are twist and pull types, punch and turn models, pull and shove designs, etc. One aircraft, the H-3, has eight different escape mechanisms. Additionally, there is a variety of rescue handles (total 10) on the outside. *There is no standardization!*

Pilots and aircrewmen are familiar with the escape routes of their particular aircraft, but infrequent helicopter passengers will never have a routine fixed in their mind for getting out of a sinking aircraft – the multiplexity of escape handles has ensured that. Many of the handles are hard to find and difficult to operate – actually making a routine egress an emergency in itself! Let's face it – no casual and infrequent helicopter passenger is going to be able to remember if an escape handle is a push and twist, a pull and shove, or a twist and pull model when he is upside down,

H-2

SH-2F pound out window, without directions on how to do it.

H-2 left seat door handle. The one on the right side operates by pulling aft.



H-2 right seat handle operates fore and aft while the left seat handle pulls out.

H-2 right sliding door with one of three different types of door handles.

H-2 exterior rescue handle. Still another device for rescue crews to master!

H-2 escape latch handle. Too small to find?

H-3

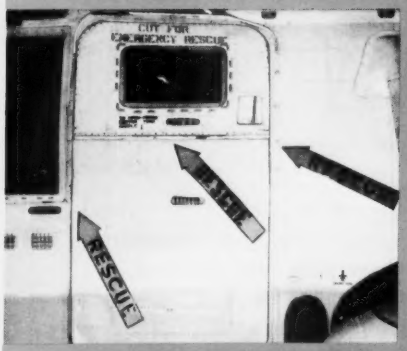
H-3 cargo door handle. Another mechanism.

H-3 cabin door with three types of handles, all of which operate differently.

H-3 cargo door escape hatch with emergency release handle that works in opposite direction to cargo door handle. Confusing?

One type H-3 exterior rescue handle for cockpit.

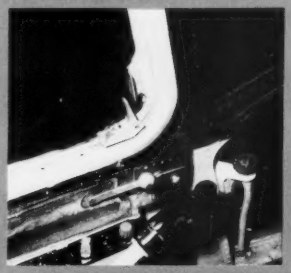
H-3 emergency escape window. Try pushing this out against opposing water pressure.



H-3 exterior door handles. One operates differently. Why?

H-3 escape hatch and still different type of escape lanyard. Why? This hatch has to be pounded out from the inside against opposing water pressure!

H-3 cargo door with two types of rescue handles that operate in different directions.

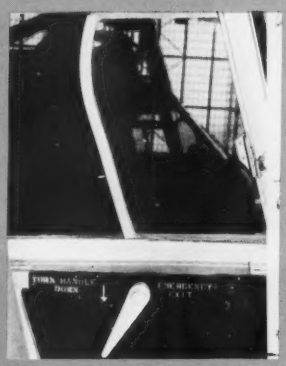


H-3 cockpit window depicting two different types of actuating handles.

H-46

One type of H-46 exterior door handle.

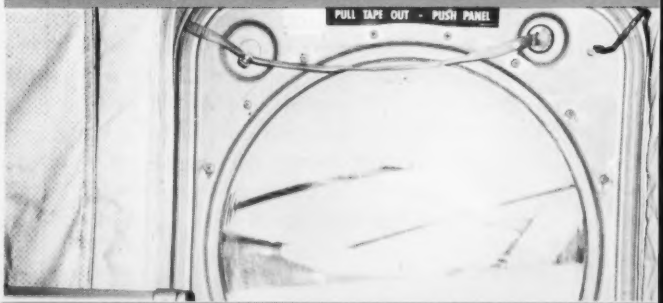
H-46 escape hatch depicting how escape latch lanyard works. This appears to be the best release mechanism.



H-46 cockpit handle.

H-46 escape hatch with rescue lanyard.

One type H-46 escape hatch with rescue lanyard.



H-46 escape hatch with escape latch lanyard.

underwater, wondering where his next breath of air will come from – that is, if he can even find the latch! Also, there is no provision for lighting hatches and escape routes!

What is to be done? We have a problem, and most solutions to our problems seem to be expensive. This, however, does not appear to be true in this situation.

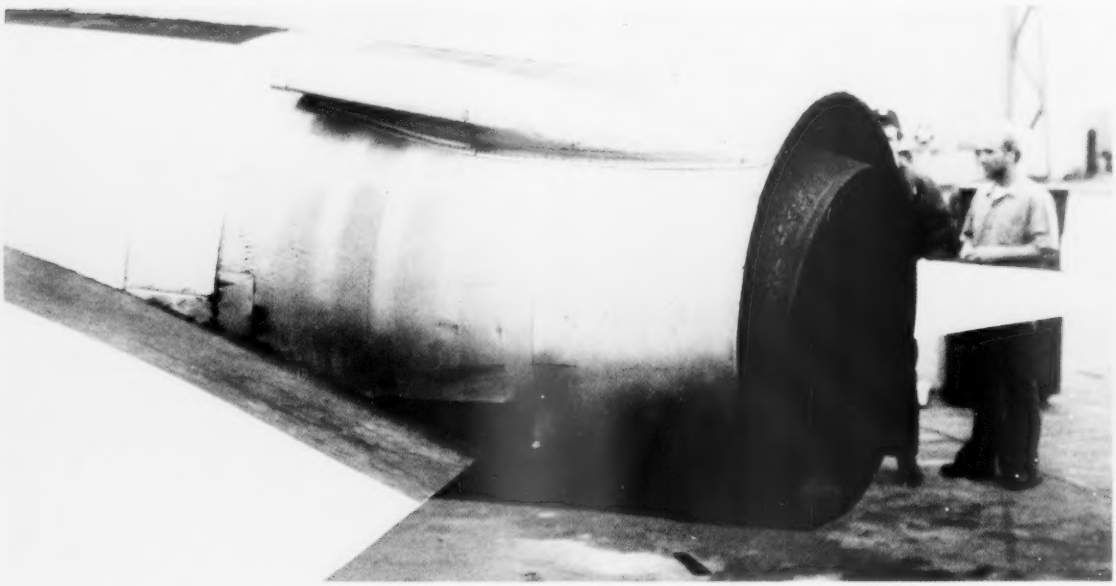
• *Escape latch release mechanisms should be standardized.* Of the inservice models, the H-46 lanyard – pop out model appears to be the best because it is the largest and easiest device to locate. It can be actuated by hand, foot, or elbow. Furthermore, it can, with minor modification, be adapted to most existing escape latches in the H-2 and H-3.

• *Outside rescue hatch release mechanisms should be standardized* to eliminate any confusion for rescue crews.

• *Escape routes and hatches should be illuminated by fluorescent chemical lighting* which is saltwater activated. These modifications can be accomplished on a local level in existing aircraft. Once modifications have been accomplished, standardized escape training can be set up.

• *Last, but not least, once the Navy adopts standard escape hatch specifications, it should be written into helicopter development contracts so that new models being introduced do not come out with new escape latch designs, adding to the confusion.* ◄

F-8 Burner Separation



LT GENE Brotherton of VF-211 launched from NAS Miramar as flight leader of a section of F-8J *Crusaders* on a routine ACM hop. While maneuvering into the first "hassle" and pulling 3 to 4G, he felt a "thump" in the aft section of the bird. He relaxed the G-load, thinking he had encountered jetwash from another aircraft. LT Brotherton then commenced an oblique loop, at the top of which he felt and heard a very loud bang. Fearing a compressor stall, he called off the fight and slowly began reducing power, at which time the firewarning light illuminated and remained lit for 60 seconds.

LT Brotherton informed his wingman of the situation and headed for home with his power set at 88 percent. His wingman joined up and informed him that his afterburner was sticking out from the tailpipe. During the 10-minute flight back to Miramar, the aircraft experienced a continuous series of loud thumps accompanied by severe pitch and yaw motions. With each thump, the wingman informed LT Brotherton that the afterburner protruded a little farther out the tailpipe (see photo).

LT Brotherton set up for a straight-in to Miramar. While dirtying up, the firewarning light again illuminated and remained on. He made a normal landing and shut his engine down as he rolled clear of the runway. Once clear, he stopped the smoking aircraft, and fearing fire, expeditiously exited.

Postflight inspection revealed that the afterburner had broken free from the engine and had in the process, severed several afterburner fuel lines. ◄

Bravo Zulu

LTJG Ted "Frito" Linger, a Red Lightning of VF-194, was engaged in an ACM hop over the Indian Ocean in his F-8J *Crusader*. Just as he was disengaging from the first series of maneuvers, his control stick suddenly jerked full forward against the stops, pitching the aircraft nosedown. After recovering from this attitude with normal backstick and UHT trailing edge up response, LTJG Linger found he could not move the UHT to the trailing edge down position with the control stick. He did determine, however, that the aircraft would respond to nosedown trim inputs.

Declaring an emergency, LTJG Linger contacted ORISKANY and informed the ship of his problems. After discussing the situation, it was deemed best to climb to 10,000 feet for a flight check, both clean and dirty. LTJG Linger determined that he was able to fly a normal approach and glide slope using backstick and nosedown trim. In addition, he determined that he had full waveoff capabilities, although care had to be taken not to overrotate since it was impossible to lower the nose quickly to prevent a stall.

Aboard ORISKANY, a decision was made to send the troubled aircraft to a bingo field 400 miles away. LTJG Linger proceeded to that field in the clean configuration after taking on extra fuel from an airborne tanker (a nice bit of airmanship in itself, under the circumstances). His approach and landing were "uneventful" since he had flight checked his control parameters and knew how best to handle the aircraft.

Postflight inspection revealed that the UHT structural feedback linkage had parted aft of the tail-break quick disconnect, causing the neutral position of the control stick to shift full forward. Subsequent inspection revealed similar discrepancies in the form of loose linkages in other aircraft.

LTJG Linger's timely and professional actions and his thorough troubleshooting undoubtedly prevented a major aircraft accident. Well done!

LTJG Ted Linger, VF-194

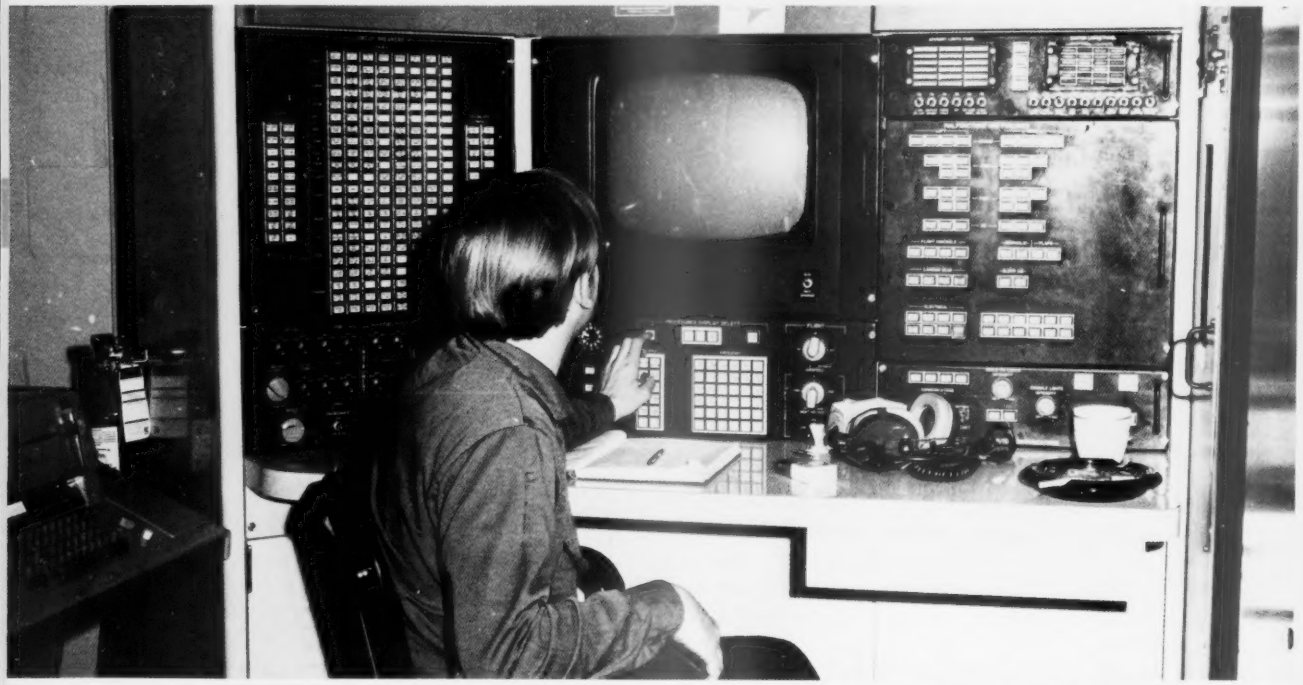
First of its kind . . .

DIGITAL COMPUTERIZED COCKPIT TRAINER

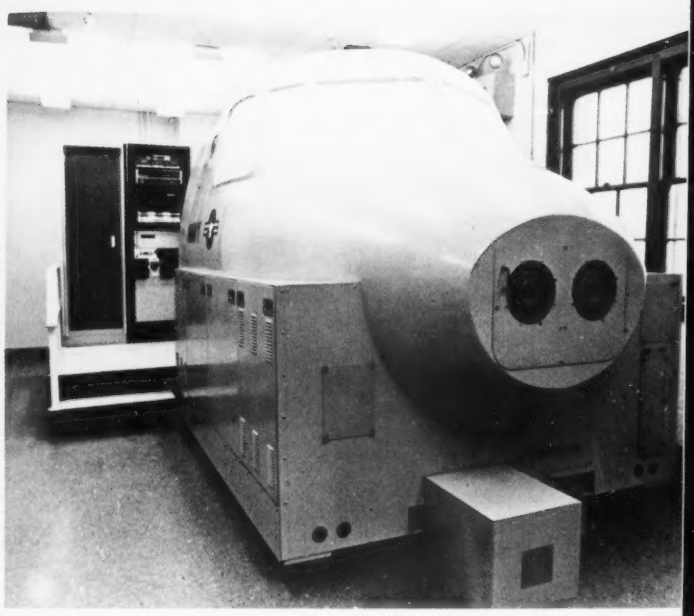
By LT Dan Johnson, USN
RVAW-120

IN KEEPING with the Navy's increased emphasis on the use of synthetic training devices within the aviation training program, the first digital computerized cockpit procedures trainer is presently in full operation at NAS Norfolk. The simulator was commissioned 21 January 1974 at FASOTRAGRULANT (Fleet Aviation Specialized Operational Training Group, Atlantic Fleet) and is an exact cockpit replica of the all-new Grumman E-2C *Hawkeye*. Manufactured by Grumman Aerospace Corp. and Hydrosystem, Inc., the device is capable of simulating aircraft performance characteristics in normal and emergency situations and automatically evaluating operator performance in each.

The instructor staff for the CPT (cockpit procedures trainer) is provided by Carrier Airborne Early Warning Training Squadron ONE HUNDRED TWENTY, which is responsible for supplying replacement pilots, naval flight officers, and enlisted flight technicians to all east coast VAW squadrons. The RVAW-120 training department has rapidly implemented the CPT to complement its ground school and flight syllabus. At present, the replacement pilot begins the first of 10 trainer flights after completion of ground school and prior to his first flight in the aircraft. After four successful trainer periods, in which proper switch positions, instrument indications, normal operating procedures, and simulated emergencies are covered, the student begins the aircraft flight syllabus. Thus far, five replacement pilots have completed the integrated CPT/flight program with excellent results. In addition to the obvious advantages



Computer operator/instructor console: Instructor induces malfunctions on panel to the right; monitors student reaction on CRT. Cockpit mockup is to immediate right.

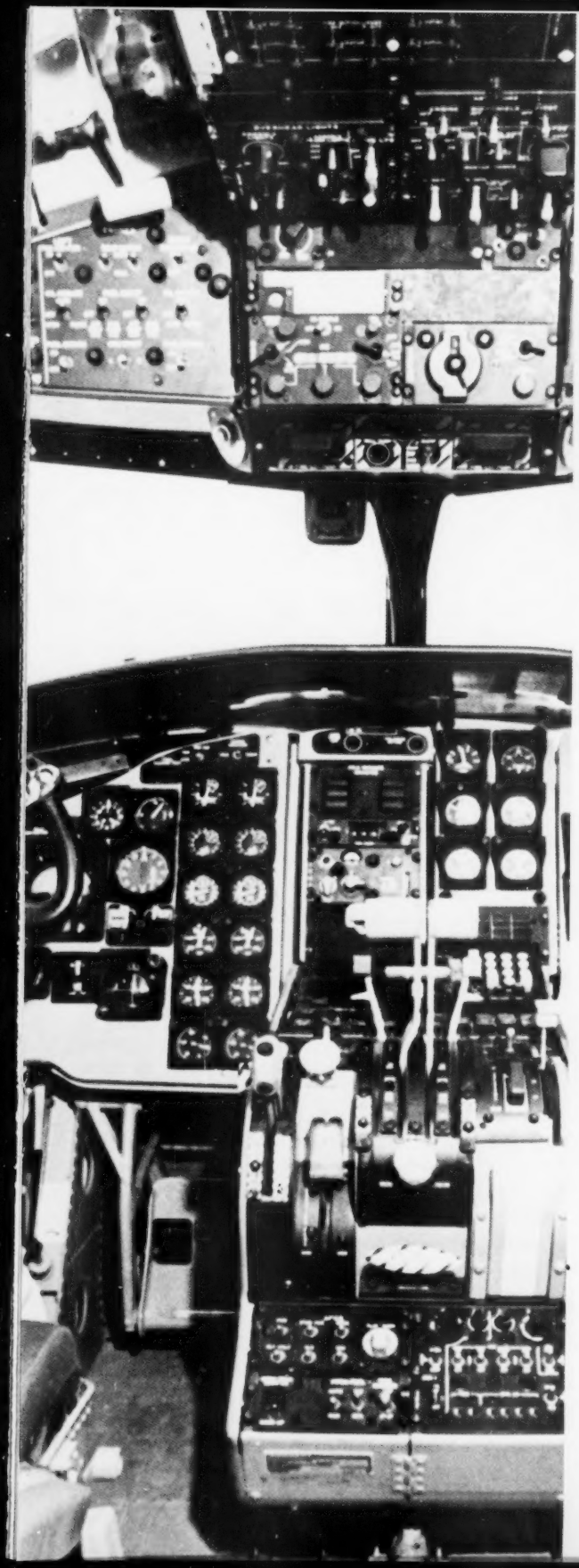


The first trainer of its type to be controlled by a digital computer, the new simulator is maintained of FASOTRAGRULANT and operated by RVAW-120.

in cost savings, the CPT provides the student with an opportunity to familiarize himself with normal system operation prior to actually flying the aircraft. This has resulted in a much more efficient and effective flight training program.

Utilizing the Honeywell H316 digital computer, an instructor pilot can enter malfunctions of the hydraulic, electrical, or engine control systems that will become apparent at any stage of the simulated flight. The student's performance and correct sequencing of appropriate procedures are then displayed on a cathode ray tube. Probably the most valuable aspect of training provided by the CPT is the ability to practice emergency procedures that cannot be performed in flight due to their hazardous nature.

The new cockpit trainer is the first of three trainers which will be associated with the E-2C. All will be operated under the auspices of RVAW-120. A sophisticated tactical trainer for use in training prospective E-2C naval flight officers is scheduled for operation in the near future, and an operational flight trainer is presently in the planning stages. ◄



Cockpit is identical to that of E-2C. Under control of computer, gages, lights, and other indicators perform as in normal flight.

What's Too Heavy?

An Anymouse Special

A COUPLE of months ago, a pilot attempted to hover an "overloaded" CH-53D. The gross weight was within the max gross weight limit of the aircraft, but because of the altitude of the zone (over 6000 feet), the power available was at the limit for ambient conditions.

The pilot had picked up to an altitude of 15 feet in a 5-knot downwind when the helo began to lose turns. He landed, ground taxied into the wind, and lifted a second time. This attempt was successful because the pilot ran the speed control levers full forward and the RPM to 105 percent. The N_r drooped to 102 percent and then stabilized.

The pilot noted that all was satisfactory and decided to air taxi from the helo pad to the runway. (Because of rock formations and no taxiway, an air taxi is the only way to get from the pad to the runway.) Prior to reaching the runway, while air taxiing sideways to keep the nose into the wind, the turns drooped below 100 percent. The aircraft settled to the deck with one main gear in a drainage ditch and the other on the edge of the runway in such a manner that the lip of the runway slipped between the gear, cracking a hydraulic brake fitting.

Later, the NATOPS officer, ASO, Ops officer, and CO met to determine how to ensure this same type of incident could be prevented in the future. The NATOPS officer and ASO recommended classroom education for all pilots and additional copilot training for the HAC (whose skills were questionable).

There followed the greatest game of pass-the-buck you ever saw. The CO and Ops blamed everyone from the ALO (who didn't request sufficient aircraft to handle the cargo and passengers) to the Group helo frag officer (who didn't notice the load was too much for *one* CH-53) to themselves (for failing to note the too-heavy load). It was then pointed out by the ASO that the load *was* within limits of the helicopter for the ambient conditions at the altitude of the zone.

The real problem was that the cargo load was 2000 pounds more than fragged and more passengers boarded than were fragged.

The pilot had two options: after the first rotor droop, he could have offloaded the troops and had them march to the runway; or he could have requested the helo be loaded at the staging area adjacent to the runway. Then a rolling takeoff could have been made.

Amazedmouse

This is a study in pilot evaluation and judgment. It must be assumed that this helo pilot realized his

responsibility to determine the immediate capabilities of his helo, regardless of what the frag order and preflight planning concluded. His hover check proved this. What should have been a "no sweat" takeoff turned out to be pushing the limits.

Fully knowing his machine was performing at its maximum capabilities and that under these conditions max performance was marginally adequate, the pilot elected to continue the takeoff. Soon, it became apparent that the limits were pushed just a little too far and fortunately resulted in just minor damage to a hydraulic system.

Noncompliance with NATOPS or SOP? No, not a factor. Herein lies the crux of the matter. The error was poor judgment. The pilot elected to exercise an option his knowledge and experience should have rejected.

The fully qualified pilot has to know how to operate the aircraft right up to the limits. These skills should be acquired through practice in controlled conditions. It is no secret that the slightest mistake, when at the limits, can be critical.

Should all operations be restricted so the limits are never reached? Absolutely not! One cannot truly learn to fly a helicopter unless he has a few hours at the limits. For instance, a pilot may never understand the delicate balance between ground cushion and translational lift unless he has not had enough power to take off without using them. He may never know why he should or should not use a little rudder (or sideward flight). He may never have been forced to "milk" his collective to regain N_r.

These and many other skills were tools of survival in the days of less powerful helos. They still are skills of survival when any helo is at the limits. The means to learn them is through carefully controlled experience, not trial and error.

RECORD OF SORTS

"I WAS and am amazed at the speed of the rescue. I have been through helo hoist rescue training, and everything worked as advertised. When the swimmer grabbed me, I knew I was home free. The helo team did a fantastic job."

This is the postrescue statement of a member of the seven-man crew of an A-3 which went into the water after material failure of the arresting gear. The plane guard crew saw the A-3 hit the deck, bounce, and proceed down the deck and over the angle. As the seven crewmembers emerged from the overhead hatches of the intact aircraft, the helo stood by off the A-3 wing.

Because of floating debris in the area, the rescue swimmer was *lowered* into the water. He grouped the survivors clear of the wreckage as the helo backed away from the immediate area. When he gave a thumbs up, the helo moved in.

The first three survivors were hoisted with the standard horsecollar. The rest went up in the Billy Pugh net. Two enlisted passengers aboard the helo helped the crew with the survivors.

"The position of the rescue helo and the professionalism of its crew definitely contributed to minimum discomfort of the survivors and conceivably prevented their incapacitation," the mishap board said.

HC-2 believes this is a helicopter "record of sorts" – the most rescues by one helo from a single aircraft accident at sea.

Anybody recall a rescue that tops it?

CYS

Games People Play

CYS . . . *Covering Your Six* . . . is a game not reserved for any one segment of the population. It is played everywhere, at times, and is especially popular with supervisors. Hockey, golf, and baseball may be seasonal favorites, but CYS is a year-round pastime . . . and anyone can play.

Most CYS players were originally participants in the more orthodox game of MA (mission accomplishment), and the similarity between the two games can lead to some confusion. Still, the best way for a beginner to become proficient is to study the great games of the masters. Watch the experts at play and then decide for yourself. Is *covering your six* the game of the future, or is there more real satisfaction in mission accomplishment?

The following account is of an imaginary game, but it does indicate the extremes to which CYS players can go.

Pitchout's Punchout. LT Percy Pitchout was a keen, young pilot, well liked by his squadron buddies, a real ball of fire, and fun at Friday night Happy Hours and squadron parties. A free-living, young bachelor, he was enjoying his first tour after receiving his wings. After all, at 23 years of age, who could ask for anything more than a sleek, fast fighter in which to burn up the sky.

One bright spring morning, Percy roared off on a routine low-level nav hop. Forty-eight minutes after takeoff, a telephone call from a rather confused farmer's wife advised base security that a pilot was nursing minor injuries in a farmhouse 185 miles northwest of the airfield.

Pitchout had punched out moments before his aircraft crashed into a rocky, pine tree-covered ridge. Base SAR launched its helo, and as Pitchout was being returned to base, an accident investigation board was convened.

After burning the midnight oil for a couple of weeks, the board members packed up and went home, leaving the wreckage (which was quite inaccessible) under the pine trees. The bound volumes of their investigation, findings, and recommendations were duly signed, sealed, and sent on their way to travel from desk to desk, through the musty chambers of various HQs until "Pitchout's Punchout" was finally laid to rest; another statistic on an accident rate graph, another colored slide for a statistical briefing.

Essentially, the board found that the young lieutenant's aircraft had been serviceable and functioning properly on impact. Pitchout was able to fill in the details.

Enroute, at 500 feet, he had encountered some

scattered stratus and had descended below the clouds. The scattered condition rapidly became overcast. Flying down a valley, Pitchout suddenly realized that he wasn't going to clear the ridge ahead. He tried to pull up, but decided to eject when he felt the aircraft contact trees (the board congratulated him on this decision).

The facts were therefore quite clear, and the board stated as much. Pitchout admitted that he had "pressed on into deteriorating weather conditions which forced him to descend to maintain visual contact with the ground." But, some other observations were made by the investigating team:

• Pitchout had just returned from 2 week's leave, and this was his first flight.

• Pitchout had signed out in the wrong column.

• Pitchout had no breakfast on the eventful day.

• Pitchout, along with others, had not signed the squadron's required reading file for the quarter.

Now, Pitchout was relatively inexperienced and had been in the squadron less than a year. But his squadron CO, CDR Gung Ho, had a multiyear and multitype background. He was naturally perturbed at the loss of an aircraft and the close call for young Percy. He became even more concerned when *his* air wing commander arrived without warning and suggested, in the strongest terms, that Gung Ho shape up his operation or else . . .

Obviously, Gung Ho's operation was somewhat "loose." Operations' control seemed nonexistent. Pitchout had been gone for 2 swingin' weeks with his hot honey, a new Corvette, and yet he arrived back at base and set off on a low level nav mission without so much as a quick taxi test. Signing out in the "unit type training" block and failing to sign off required reading are not prerequisites for flying into the trees, but they do indicate a somewhat lax attitude on behalf of all concerned.

Fortunately, Pitchout was still alive, but a valuable aircraft had been lost. What could be done to prevent a similar incident in the future? Half a mile of shattered airplane and an injured pilot add up to lots of zeros below the line. The only plus factor in this type of occurrence is in its preventive value. If some lessons can be *learned* and then *applied* . . .

This is the point where the skipper could have made the opening moves in a serious game of MA – but instead, a classic example of CYS developed.

How CDR Gung Ho Played CYS. CDR Gung Ho called a squadron AOM (all officer's meeting).

• The ASO briefed on the dangers of continuing a mission in deteriorating weather conditions.

• Required reading was to be signed off as having been read every month vice every quarter. Furthermore, a new memo was placed on the squadron bulletin board to be signed when the other pubs had been signed off.

• The visibility limits for low level nav missions were raised from 3 to 5 miles.

Continued

• All pilots returning from leave were to have a dual checkout.

• Pitchout was given a NATOPS checkride and returned to the flight line "stamped" qualified.

CDR Gung Ho was satisfied. He was fairly confident that CAG would be satisfied – and he was right. Young Percy was just an inexperienced "tiger" now duly chastened. Operations had been tightened up, and everyone could sit back and relax. Even those flight safety characters could hardly complain. "Pitchout's Punchout" would soon be forgotten, and the squadron could carry on – just as before.

How Could Gung Ho Have Played MA? It is doubtful that the CO could start a real game of MA by himself. He probably needs some coaching from a higher supervisory level. Although his CYS moves point in the right direction, their value in most instances is negative.

The AOM was expected – although no one could remember when the last one had taken place. According to the minutes, *all* pilots were briefed about pressing on in bad weather (but two were on TAD, one was on leave, one was SIQ, and another at instrument school). Since AOMs were so few and far between, the response from the squadron might be "Ho hum, here we go – the old ASO safety routine." Instant turnoff.

If the skipper is to play MA, he must evaluate himself and his whole operation in terms of the objectives established by the service. His attitude towards flight operations creates the atmosphere in which his subordinates work. If Gung Ho merely pays lip service to the goals of the organization, then Pitchout's Punchout will be just one of many failures.

Regular, programmed squadron meetings with the CO as a *participating, decisive* chairman should be the rule rather than a quickie CYS move when things go wrong. At one of these regular meetings, the flight surgeon could be on hand to give a forceful talk on the advantages or necessity of having some food intake before flying. The ASO, "exhorting" aircrewmen to gobble up their corn flakes, is hardly speaking with any authority.

What about signing all the pubs monthly instead of quarterly? Well, if Gung Ho's troops aren't signing every 3 months, it's doubtful they'll be leaping up, pen in hand, to sign on the first of *every* month. "Sign as having read" has come to mean "sign as having signed." Obviously, some system must be established for aircrewmen to be advised of any changes in orders or procedures, but not to the point where the pilot has writer's cramp before he reaches his aircraft.

Gung Ho increased the limits for VFR to 1000 and 5. In effect, he is saying to his pilots, "I don't trust you . . . you'll drop me if given half a chance." The next

time someone tickles the trees, Gung Ho will say to his CAG, "See that, and I even added on some extra limits for safety!" Of course, the original limits were quite acceptable and provided an adequate operational training situation. If Gung Ho continues with this line of play, he will eventually fudge himself into a position surrounded by all his aircraft in a locked hangar.

The requirement for pilots returning from leave to have a dual checkout is worthy of an MA player (after a few days off, a little dual time with an experienced pilot never hurt anyone). But the real value of such a ride will depend again on the *attitude* of the supervisory staff which, in turn, influences the behavior of the line pilots. So often, this flight becomes a casual touch-and-go practice rather than a professional workout to get rid of the cobwebs.

Finally, there's little Percy, the prime mover in all this. He's now back in harness – fit for duty. But is he? The medical officer has given him a clean sheet, and the standardization officer has given him a checkride. No problems. What did Gung Ho expect? Did he think Pitchout would go out and fly into the trees again – or forget to put his gear down? No, Pitchout may continue his flying career for 20 years and never have another mishap – or he may not be so lucky. If he doesn't make it, he'll become a topic for bar talk. The old heads will gather 'round; "He was an accident looking for a place to happen"; "I knew he'd never hack it"; "Remember the time when he punched out?" These are the disappointing comments which mean that somewhere, sometime, someone sloughed off his responsibility to a young Pitchout.

It isn't good enough to *hope* the young man will make it and then hide behind earlier prophesies when he plows in. Why didn't someone speak up earlier? Why didn't the experienced pilots take Pitchout aside and give him the benefit of their years behind the pole? Why didn't Gung Ho recognize that Pitchout needed some personal attention, training, and regular evaluation? Why?

Why CDR Gung Ho Plays CYS. This is the most difficult question to answer without having access to the clockwork in CDR Gung Ho's head. The incredible paradox is that Gung Ho thinks he is furthering the aims of flight safety. In effect, he is doing just the opposite. Perhaps:

Gung Ho turned to CYS because it was *easier* to play. Authority is lots of fun if you can get rid of the responsibility that goes with it. MA demands *effort*. In the case of Pitchout, it demands a careful appraisal of a pilot and an operation. This is a difficult task, but essential if the squadron is to develop with any prospects of growth and success.

Rather than search for the root causes and try to prevent a recurrence, Gung Ho found it easier to have his aircrewmen sign a few pieces of paper. Previous experience had convinced Gung Ho that it was best to look out for himself. A few extra restrictions on the squadron wouldn't hurt and would prove he was "tightening up." The goals of the service had become secondary to personal objectives. Let's see, "I've got 2 more years to my 30, so if I can just keep my nose clean . . . "

The sad story of Pitchout's Punchout and the ensuing account of CDR Gung Ho's gamesmanship are of course completely fictitious. No one would go to such great lengths to avoid facing up to responsibility. And by the way – how's *your* paper-signing hand?

Courtesy Canadian Forces *Flight Comment*

FLYING BOMB

THERE'S an old saying concerning fools and drunks that really doesn't apply to this C-130 crew because they were neither. Nevertheless, the Lord was looking out for the crew when they encountered problems which try the souls of flightcrews.

LT Gary E. Payne and his crew were some hours out over the Atlantic when a major fuel leak was reported. It seemed to be coming from under the wing, near No. 3 engine, but it was impossible to tell for sure whether the fuel was coming from under the wing or the engine.

After an NTS check, the No. 3 engine was secured with the fire handle. It was allowed to windmill until the ECL (engine condition lever) was placed in feather. The pilot then tried to lower the flaps to 50 percent to blow out any fuel in the flap well. As the flaps went beyond 30 percent, hydraulic fluid gushed out. The flap handle was immediately returned to 0 percent. The flaps came up, and the leak stopped; so the handle was not touched again.

An emergency was declared with Oceanic Control, and their problems were made known. A course for Homeplate was established, and prayers for a safe return were voiced.

Fuel was then seen pouring from the No. 2 beavertail, aft of the No. 2 engine. Another NTS check was made on No. 2, but the engine was left operating. The fuel system selected was main tank-to-engine position, but no dumping was performed.

After about 2 hours on the return leg, the pilot decided to terminate as soon as possible. So, a routine landing was made at the first available airport. Number 2 engine was secured on rollout with fuel still streaming out. They cleared the runway, secured engines and switches, and evacuated the aircraft.

Later, the crew found a cracked fuel line from the crossfeed manifold to the fuel pressure transmitter. The No. 3 dry bay filled with fuel with the fuel system in crossfeed. The fuel spilled over the outboard edge of the ribbed floor and passed back under the No. 3 dry bay between the top of the underside skin and the underside of the ribbed, dry bay floor, passed under the center dry bay, under the No. 2 dry bay floor, and began filling the No. 2 dry bay. (Thus, No. 2 and No. 3 dry bays and the cavity connecting them were filled with fuel.)

The flap failure was unrelated to the fuel problems, but contributed to the pucker factor of the crew. The crew followed NATOPS procedures, and the pilot's decision to land as soon as possible was exemplary. ◄

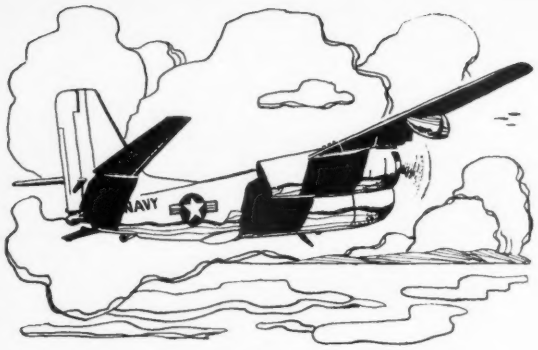
Some Thoughts About Positive Control

NAS Corpus Christi – Despite the well-meaning intentions of recent directives, requirements for positive IFR control in VMC (visual meterological conditions) may actually have compromised safety of flight. Rather than training students who are well-versed in VFR flight and in the inherent responsibilities of the pilot-in-command, we are now producing aviators who have a vast majority of their point-to-point flight done under positive ground control rather than by pilotage.

The possible safety backfire comes when you remove this new aviator from the embryo of ARTC controls and send him out to fly where it is nonexistent. Or worse, the safety backfire could come when a pilot reaches that point where he should cancel IFR and go VFR, due to some emergency situation. Take a few cases, for example:

• During a training flight conducted a few miles offshore from NAS South, one of our instructors had to cage an engine. The weather was daylight VFR with the field in sight. Following routine procedures, the instructor contacted South Approach Control for an IFR clearance from the area back to Homefield. Approaching the mainside area, he was denied permission to descend and was brought in at an awkward angle to the duty runway. When Approach "let him go" VFR again, he was 1000 feet higher than usual and unable to enter either a downwind or a straight-in.

Had the pilot elected to go VFR between his training area and the traffic pattern, it is doubtful whether the single-engine waveoff (which resulted) would have happened. The problem Approach had was due to maintaining required IFR separation from this aircraft and others in the GCA pattern. Despite having a bonafide emergency, this pilot apparently failed to realize that he could have cancelled his IFR clearance and gone VFR as soon as he realized the vector was going to affect his subsequent approach and landing.



• Three aircraft were on an IFR cross country from NAS North to NAS East. They were all flying the same route within a few minutes of each other. Each one had communications and navigational problems with approach control in the terminal area. Three were approaching low fuel states.

One by one, the birds were descended to VFR conditions underneath. All broke out within a few miles of the field and had it in sight. Yet, only one aircraft cancelled his IFR flight plan to enter the VFR traffic pattern. With low fuel states, the other aircraft continued for another 20 minutes in the GCA pattern.

Once again, we have a pilot trained in the necessity for positive control – reinforced on a daily basis – who failed to recognize the time to cancel IFR and go VFR.

• At the 180 in a night VFR landing pattern at a nearby outlying field (which has no taxiway lighting), one pilot noticed low oil pressure and a fresh oil leak. He broadcast his intentions to make a right turnout into a direct straight-in for the duty runway at Homefield. Despite the circumstances, the tower insisted that he needed an IFR clearance to do this. When the pilot switched to NAS South tower, the OLF crew was still trying to get the pilot to remain under their control until proper clearances could be obtained from approach control. Another case in which the field was in sight and it was CAVU to the moon.

Three cases in which the aircraft were all less than 5 miles from their destination, under VMC conditions. Three cases in which the pilots failed to exercise their responsibilities to conduct the flight in the safest manner possible. Two cases in which ground controllers ignored common sense in handling traffic with known problems in VMC.

Perhaps those at the top need to reevaluate the wisdom of making all point-to-point navigation under positive ground control. Those who are flight instructors need to teach students the procedures for VFR flight and the responsibilities of pilots-in-command with bonafide problems. It is too easy to get locked into doing everything with the clearance of some ground controller.

LT J. J. Tritten
VT-31 Safety Officer

• CNO requires that aircraft operate under positive IFR control to the maximum extent practicable. This is necessary because of the imminent and proven threat of midair collisions in our crowded skies. We note, however, that General NATOPS (OPNAVINST 3710.7G) provides that pilots may operate under VFR rules in case of emergency, if they are in VFR conditions. Furthermore, both OPNAV and FAA regulations provide emergency authority for the pilot-in-command to take whatever action is necessary to ensure the safety of his aircraft.

The crux here is that the pilot must be educated to take the initiative in ensuring the safety of his aircraft. Certainly, this education must begin during basic flight training. Each pilot must determine under what conditions he will declare an emergency. He must not be lulled into a false sense of security by the fact that he is under positive control and subsequently wait too long before taking the necessary action. Note, however, that sometimes the emergency can be better handled under positive control. It all depends upon the situation. Furthermore, whether you're IFR or VFR, an emergency or a mere "problem" should be handled with common sense. Often, all that is necessary is that both pilot and controller communicate clearly as to desires and intentions.

We agree with you that piloting skills should not be allowed to wither. You never know when you'll need these "old time" skills to complete a mission safely.

As a flight instructor, you are in an ideal position to emphasize this important point to fledgling aviators. ◄

Before starting a difficult task, stop and think. Then remember to get started.

Ace L.

Letters

What You See . . .

NATC Pax River – Re "What You See Is . . . ," Air Breaks, MAY '74 APPROACH. Recently, I took the crew chief's word that the pitch locks on my CH-46F were OK and engaged rotors. It was the roughest engagement I have ever ridden through in more than 900 hours in the H-46. On noting "spikes" in the cruise guide indicator (up to the 12 o'clock position), I quickly shut down without any damage. It seems one of the aft head pitch locks had not gone all the way home. The point is check it first, then if something doesn't look or feel right, shut it down, check, and try it again.

Assumptions will always get you in trouble.

LCDR D. R. Vetter
Weapons Systems Test

Rollout Stupidity

Scott AFB – I've just finished perusing the MAY '74 APPROACH. As usual, you have done an outstanding job of converting dull safety statistics to hard hitting and enjoyable reading. One article seemed a little off center though. I'm referring to the subject in the Air Breaks section.

Rather than berate PPC Stoutfellow for not preplanning his approach, landing, and rollout, why not question his judgment for getting himself in such a position in the first place? The reported weather conditions (WØX 1/16F 41/39 23/03 982) combined with a wet runway would certainly cinch my decision to go elsewhere. Were there overriding operational considerations that required the aircraft to land at Homeplate? Personally, I think the unit's accident prevention program is in serious trouble if this sort of operation is the norm. Either that or the Navy has a secret method for training super pilots.

MAJ Barry J. Granlund, USAF
Headquarters, Air Weather Service

• We wouldn't take any operational pilot to task for shooting an approach to minimums in any fully-instrumented multipiloted, prop or rotary wing aircraft, providing his copilot is NATOPS qualified and the aircraft has the capability to make a suitable alternate after a missed approach. The pilot's performance in landing long on a wet runway, and compounded by lackadaisical action on the concrete, however, is inexcusable. If he had been on speed, on course, at decision height, he wouldn't have touched down with so much runway behind him.

We agree with you that many pilots would have diverted without shooting an approach. Unfortunately, we don't know what considerations might have dictated his landing at Homeplate.

If one is permitted a guess, it appears that he didn't expect to get in and mentally wasn't ready to land. Once on deck (surprise), he frittered away usable runway.

A Slow Burn

FPO, San Francisco – Most HC pilots will agree with CDR Kruger's basic premise concerning the interface between the CVA/CV and helicopter operations in the MAY '74 APPROACH. Nevertheless, I feel he has unnecessarily downgraded the mission and quality of HC pilots.

Why must a unit be autonomous to have a sound foundation in shipboard operations? HC detachments have been operating off ships for 25 years – ever since rotary-winged aircraft first appeared. Do we not operate in accordance with established OPNAV/NATOPS procedures? We *do* have an effective SOP/NATOPS program. Are we not mission oriented? Just because we're a small detachment does not detract from pride in unit identification, our mission, capabilities, others in the det, and our own personal satisfaction.

I'm sure CDR Kruger did not mean to imply any of that in his article, but many people might draw such a conclusion. The basic OPNAV instructions were also written for helicopter pilots. The SH-3 NATOPS Manual is basically the same for the A/G/D models and was meant to be complied with by all H-3 pilots. Although HC aircraft are not ASW equipped, we do have a mission, and no group of pilots are more mission oriented. I have yet to see a unit with as much pride as ours, especially after a successful night rescue.

A Proud HC Pilot

• Let's review the bidding. We have recently published two outstanding articles on helicopter operations aboard carriers authored by squadron commanding officers.

CDR Mike Marriott, ex-CO of HC-2, wrote the article "Twenty-Five Years and Still Holding" in the NOV '73 APPROACH. His article pointed out the trials and tribulations of most HC detachments aboard carriers and the repetitive nature of mishaps. CDR Allen

APPROACH welcomes letters from its readers. All letters should be signed, though names will be withheld on request.

Address: APPROACH Editor, Naval Safety Center, NAS Norfolk, VA 23511. Views expressed are those of the writers and do not imply endorsement by the Naval Safety Center.

Kruger, CO of HS-5, in his article "One Year and Truckin'" pointed out how helicopter operations *can* be successful in the new CV environment. He made no bones about the fact that HC dets aboard carriers used to be add-ons and had little status and very little voice. Helo ASW squadrons, however, deploy as units, are identifiable, and enjoy command clout. Like it or not, it's a fact of life. But he is convinced all helo operations will be better in the future when he stated: "We now have the means and momentum to completely dispel the old CVA rumors that helicopter pilots take second seat. We not only need to prepare ourselves thoroughly and professionally, but also stand up and demand equality plus recognition for our unique capabilities."

No one is pinging on HC missions or your pride. The record speaks for itself. By now, the number of successful saves by HC pilots must be well over 1000. That's a fact! Keep on truckin'.

Snapring

FPO, San Francisco – While I was reading CDR Zirbel's very excellent article "Chaos Index" in the MAY '74 issue, my attention was attracted to the pictured aircrewman's torso harness. Although the value of such a device in a helo recovery situation is obvious, the authorization for its attachment to the aircrewman's torso harness has eluded me. Perhaps your staff could enlighten me as to the publication reference. Thank you.

MgySgt Lynn D. Oxford
H&MS-12 Flight Equipment

● You're right – the ring pictured in APPROACH is a *carbiner snap link.* And the reason that you've failed to find its authorization is that it was never officially approved. NADC (Naval Air Development Command) is currently evaluating a similar ring, the only difference being that it is flattened at one end to take a webbing loop. If all goes well, the technical directive introducing the official "D" gate ring to the fleet should be published by this fall.

Switch Design

NATTC Pax River – I take exception with your reply to LT W. C. McCamy's letter in your MAY '74 APPROACH. Your answer sounds like *you* are responsible for funding any change in switch design. I thought a *safety* magazine should be primarily concerned with the best way to save lives and equipment and not so much concerned with the cost of achieving maximum safety. Admittedly, cost of fixes must be considered; however, we should not rely on operational procedures to compensate for design deficiencies when cost of change is not prohibitive.

LCDR R. J. Palma
NATOPS Officer, NTPS

● We are concerned – like 100 percent – with the best way to promote safety. We constantly ping on manufacturers to improve system safety. We harp on aircrews to follow NATOPS. We plead with maintainers to do every job right by following the MIM and IPB. We criticize supervisors when supervision is missing.

As for switch design, let's get serious. It makes little difference how they are designed, which way they are activated, what color they are coded, or whether they are guarded or not. Someone, *without thinking*, will activate them incorrectly. The best SOP is to have two sets of eyeballs and two brains agree on any switch movement. That's the nearest thing to a fail-safe procedure we're likely to see.

High and Hot

NAS Memphis – Re the article "High and Hot" in the JUL '74 APPROACH. I wonder how many other aviators can identify with the story. I know I can.

The circumstances were quite similar. The aircraft was an A-4L, double bubble with a full bag of fuel, a blivit of heavy gear, in the middle of a hot August afternoon at the same airfield (confirmed by the runway length and airfield elevation in the Enroute Supplement).

The rest of the story reads about the same as yours with one major exception. Fortunately, I was headed in the opposite direction, and instead of being faced with rising terrain, I was blessed with riding it out over a small valley. After many anxious moments in which I contemplated jettisoning my external stores (which, by the way, the other pilot apparently did not attempt), over a heavily populated area, the airspeed indicator and altimeter began to respond, and the rest of the flight was uneventful.

My wingman, whose aircraft was configured the same as mine, except for the blivit, made a no-sweat takeoff.

Name Withheld

FLIP Changes

The Defense Mapping Agency, St. Louis, MO, has notified the Naval Safety Center of the following change to FLIP documents:

● The U.S. Low Altitude Terminal FLIP is published in nine basic volumes which are issued every 8 weeks. A scheduled MAN (Military Aviation Notice) will be published in a bound format at the 4-week midpoint and contains revisions, additions, and deletions to the last complete issue of the basic nine volumes. These products must be used in conjunction with each other during mission planning or for inflight reference. It is imperative that the aircrew member first consult the MAN before making any decisions regarding which Terminal Instrument Approaches are current at the aerodrome of intended landing. If the aerodrome of intended landing is not listed in the index of the MAN, then the aerodrome information in the basic nine volumes has not changed. All IAPs published in the nine volumes and those issued in the MAN are effective as of 0001 hours local time of the date shown on the front cover. NOTAMS and unscheduled MANs will be issued when determined necessary by the military departments. When unscheduled MANs are received, staple the new or revised chart to the inside front cover of the appropriate FLIP Terminal volume and make annotations on the affected chart(s) as necessary.

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approach

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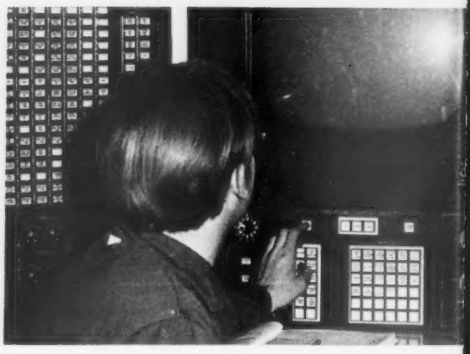

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DISTRIBUTION/Requests for distribution changes should be directed to NAVSAFECEN, NAS Norfolk, VA 23511, Attn: Safety Publications Dept. Phone: Area Code 804, 444-1321.

PRINTING/Issuance of this periodical approved in accordance with Department of the Navy Publications and Printing Regulations, NAVEXOS P-35. Library of Congress Catalog No. 57 60020.

CREDITS/Cover painting of a Deep Freeze "workhorse," the Lockheed C-130 ski *Hercules* by Martin O'Connor. Courtesy Lockheed-Georgia Company.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1974—635-019/2

BEWARE OF THE ANVIL
OR YOU MAY GET HAMMERED

contributed by
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ASO, VP-44